

# The role of professionals in personalised Nutrition

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# EFAD Association Members

EFAD has 33 National Dietetic Association members  
in 27 European countries  
representing over  
35,000 dietitians



# EFAD Education Members

EFAD has 38 Education  
Associate Members

in 14 European countries

teaching over

9,000 student dietitians



# Specialist Networks of dietitians

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Obesity

Older Adults

Diabetes

Public Health

Food Service

Oncology

Primary Care

Higher Education

Sports and Physical Activity

Gastroenterology

## Specialist Networks

EFAD has ten European Specialist Dietetic Networks (ESDNs).

Each ESDN is managed by a committee of dietitians who are experts in their field.



# **ENDiets** | European Network of Dietetic Students



1628 students from 51 different countries

# EFAD definition of a Dietitian

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- Using evidence-based approaches, dietitians work autonomously to empower or support individuals, families, groups and populations to provide or select food which is nutritionally adequate, safe, tasty and sustainable
- **Dietitians assess specific nutritional requirements throughout the life span and translate this into advice and/or treatment.** This will maintain, reduce risk to, or restore health, as well as alleviate discomfort in palliative care
- Beyond healthcare, dietitians improve the nutritional environment for all through governments, industry, academia and research.
- Therefore personalised Nutrition is a dietitian's job.

# Personalised Nutrition

0

General guidelines for healthy nutrition

1

Individualised anthropometric ,dietary  
and lifestyle assessment

2

Phenotype (Biochemical profile)

3

Genetic profile

# European Federation of the Associations of Dietitians (EFAD)





# Objective 1

Ensure that healthy food and nutrition is accessible, affordable, attractive and sustainable

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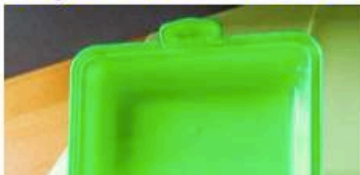
## Germany

### Kindergarten: a brilliant place to teach, learn & live healthily

In 2009, the Bavarian Ministry of State for Nutrition, Agriculture & Forestry developed a plan for health improvement through better nutrition based on nutrition education and community involvement. The aim was to implement programmes that encourage the adoption of realistic and enjoyable eating habits with a regional 'flavour' throughout Bavaria. The programmes work with the family initially and then they are sustained in school and adult education, ultimately impacting on society as a whole. The plan also includes care facilities.

The following practical example shows how a dietitian working with a school kindergarten class introduced a six-step programme about food and nutrition. The plan involves children as well as their parents and aims to demonstrate healthy nutrition in everyday life.

#### Step 1: "Breakfast" Week



Children come with an empty lunch box each morning and they are provided with a healthy lunch while the parents prepare different healthy snacks and smell, taste and touch different and new foods. There is plenty of time for chat and discussion with the dietitian.

## Objective 2

Promote the gains of a healthy diet throughout the life course, especially for the most vulnerable groups in the community and in clinical settings

### France

#### Integration of Nutritional Monitoring in Nursing Homes

Legislation currently going through the French National Assembly looks set to integrate nutritional monitoring in nursing homes into the Code of Public Health. MPs insisted on raising the issue of prevention and undernutrition as a priority within public health policies given that undernutrition is a pathological state affecting around 800,000 people in France and is one of the main causes of dependency among the elderly. This innovation in nursing homes will include:

- assessment of nutritional status
- screening for systematic undernutrition
- implementation of preventive actions if there is potential risk
- implementation of individualized dietary care in cases of undernutrition

This is an opportunity for French Dietitians to assert their skills in this area (in partnership with medical doctors and care-providers) as they are the only competent health professionals trained in these activities.

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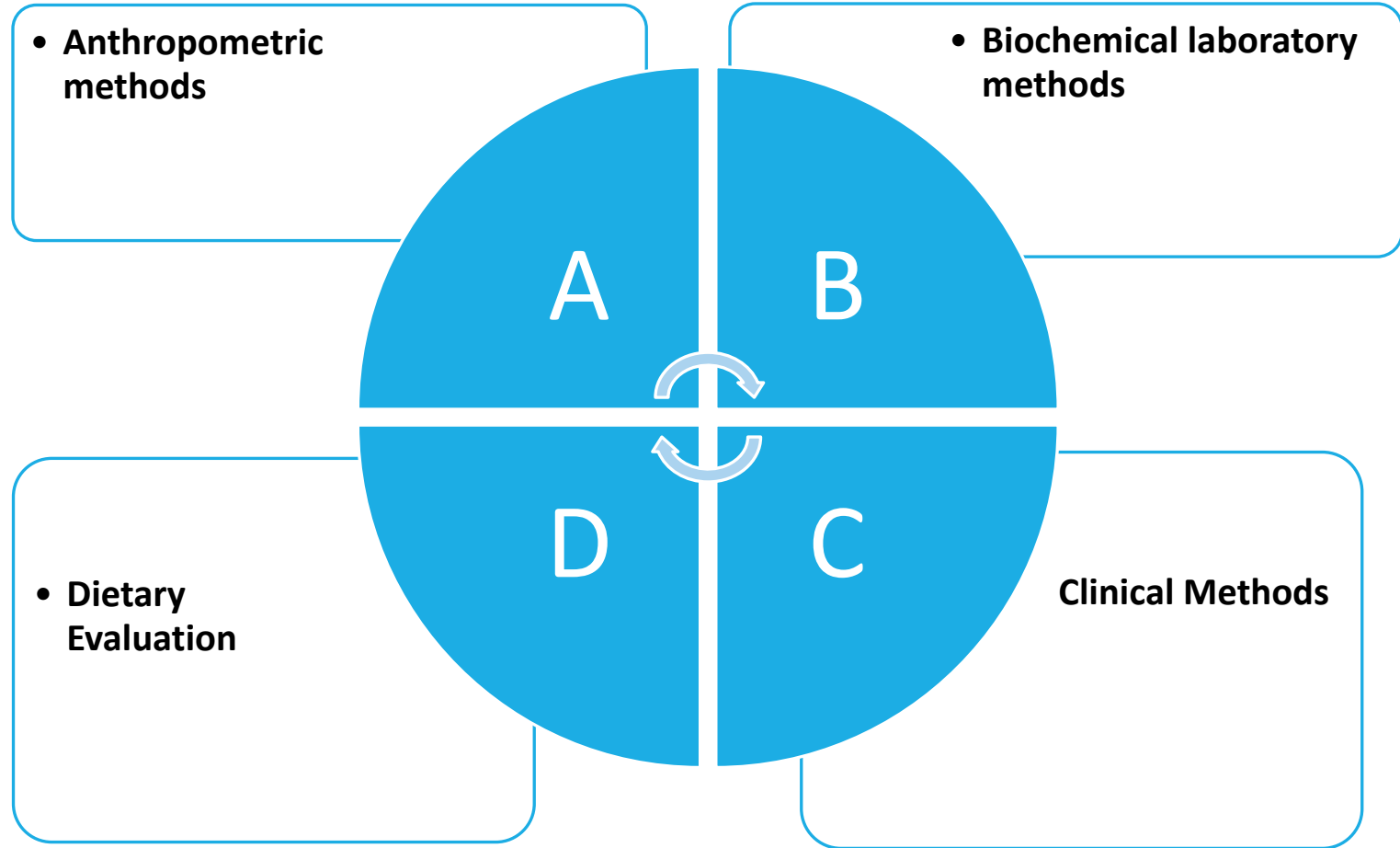
# Malnutrition

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## *Case study: Hospital Sint Lucas in Bruges*

- A dietitian was appointed for the implementation of malnutrition screening and monitoring of patients with Total Parenteral Nutrition (TPN) during hospital stay.
- improving quality of nutritional care by a dietitian, by means of a nutritional assessment, on the basis of the nutritional history, assessment of the nutritional requirements of the patient and the establishment of a nutrition advice / treatment

# ABCD OF NUTRITIONAL ASSESSMENT



# Treatment goals in National guidelines

(34 associations, 229 questionnaires)

<b>Subject</b>	<b>Country</b>
5-15% weight loss	NL
10% weight loss	It
BMI 25 - 35 kg/m <sup>2</sup> > 5 % weight loss	Ger
BMI >35 kg/m <sup>2</sup> >10% weight loss	Ger
5 years weight maintenance	GB; It
2 years weight maintenance	NL

## Tools for Obesity diagnosis

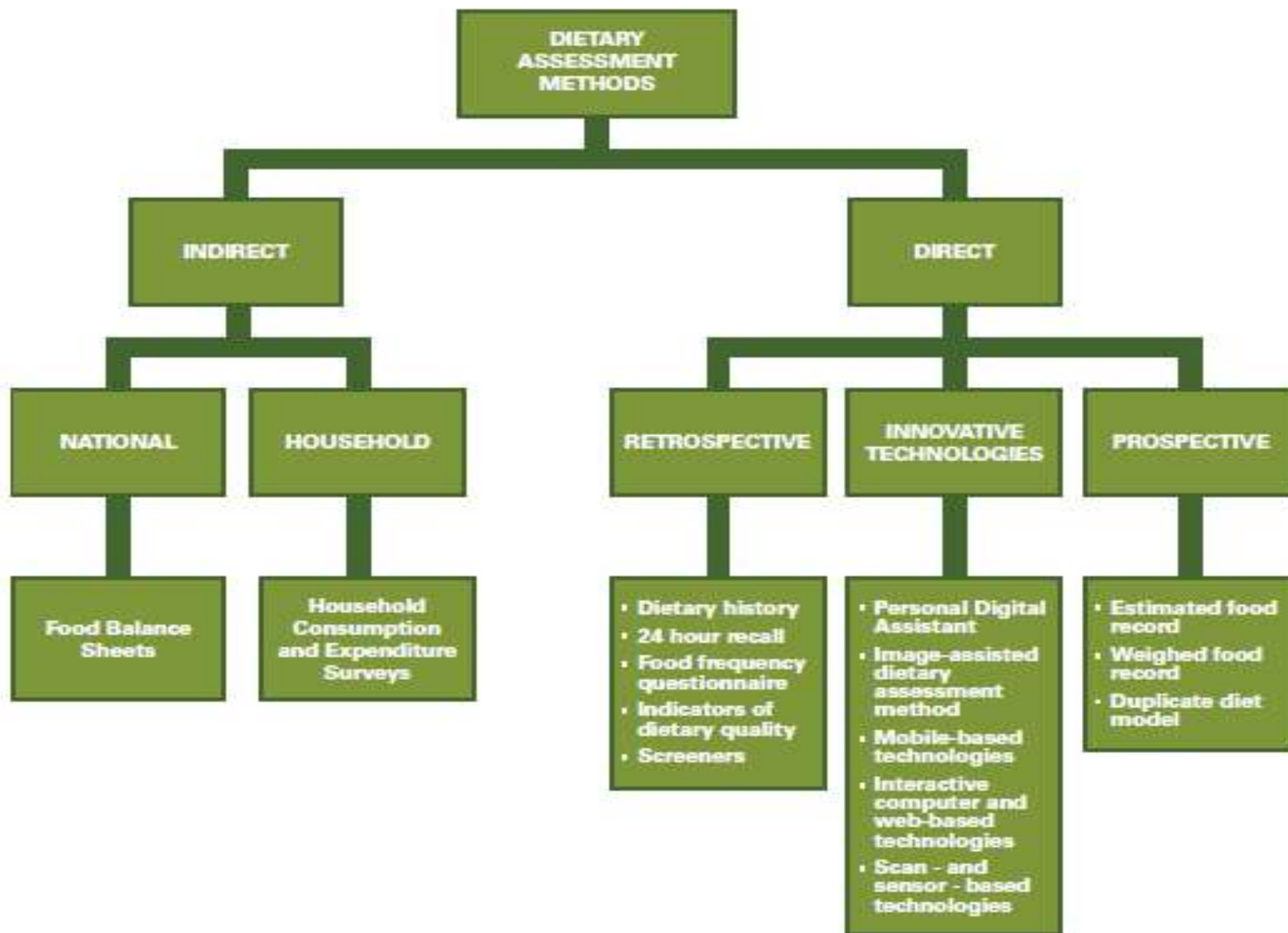
<b>Tool</b>	<b>Percentage</b>
Height, weight and BMI	90.1%
Measurement of Waist circumference	64.1%
Body composition measured by Bio-impedance	64.2%

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# Dietary interventions prescribed to overweight or obese individuals by dietitians

<b>Dietary intervention</b>	<b>Percentage</b>
Based on individual dietary assessment	65.4%
Mediterranean diet	28.1%
Low fat diet	15.6%
Low carbohydrate/high protein diet	13.5%
Very low caloric diet	7.5%





# Assessing body composition



(a)



(b)



# Resting metabolic rate



# Energy expenditure



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# BIOCHEMICAL LABORATORY METHODS

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Are used to determine deficiencies in:

1. Serum protein, particularly albumin level;
2. The blood-forming nutrients: iron, folate, vitamin B6, and vitamin B12;
3. Water-soluble vitamins: thiamine, riboflavin, niacin, and vitamin C;
4. The fat-soluble vitamins: A, D, E, and K;
5. Minerals: iron, iodine and other trace elements;
6. Levels of blood lipids such as cholesterol and triglycerides, glucose and various enzymes which are implicated in heart disease, diabetes, and other chronic diseases.

# Personalised Nutrition

Using knowledge to optimise an individuals diet

- 0 General healthy eating guidelines
- 1 Individualised anthropometric and dietary analysis
- 2 Phenotype (Biochemical profile)
- 3 **Genetic profile**

# NUTRIGENETICS AND NUTRIGENOMICS

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Nutrigenetics is an aspect of personalised nutrition that studies the different phenotypic responses (ie, weight, blood pressure, plasma cholesterol, or glucose levels) to a specific diet (ie, low fat or Mediterranean diets), depending on the genotype of the individual

- Nutrigenomics involves the characterisation of all gene products affected by nutrients and their metabolic consequences



# Nutrient-gene examples

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## Association studies

- Linking a genetic variation to a physical trait
  - FTO gene and body composition

## Intervention studies

- Where we can demonstrate that response to specific interventions vary according to genotype
  - Salt sensitivity
  - Lipid metabolism

# Nutrient-gene examples

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# Intervention studies

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Examine whether responsiveness to a particular nutrient / diet is influenced by a particular genotype

- Salt restriction
- n-3 PUFA intake
- Glycemic response

# Are dietitians ready to deliver personalised nutrition in Europe?

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Pretty much!



# Decade of Action on Nutrition

The screenshot shows the WHO website's 'Programmes' section for 'Nutrition'. The page features the WHO logo, social media icons, and a navigation menu. The main content area is titled 'Decade of Action on Nutrition' and includes a sub-section for 'The April 2016 proclamation'. Below this, there is a paragraph of text and a 'Download' section with links to a PDF flyer, SMART commitments, and frequently asked questions.

**World Health Organization**

Media centre Publications Countries **Programmes** Governance About WHO Search

## Nutrition

### Decade of Action on Nutrition

**The April 2016 proclamation**

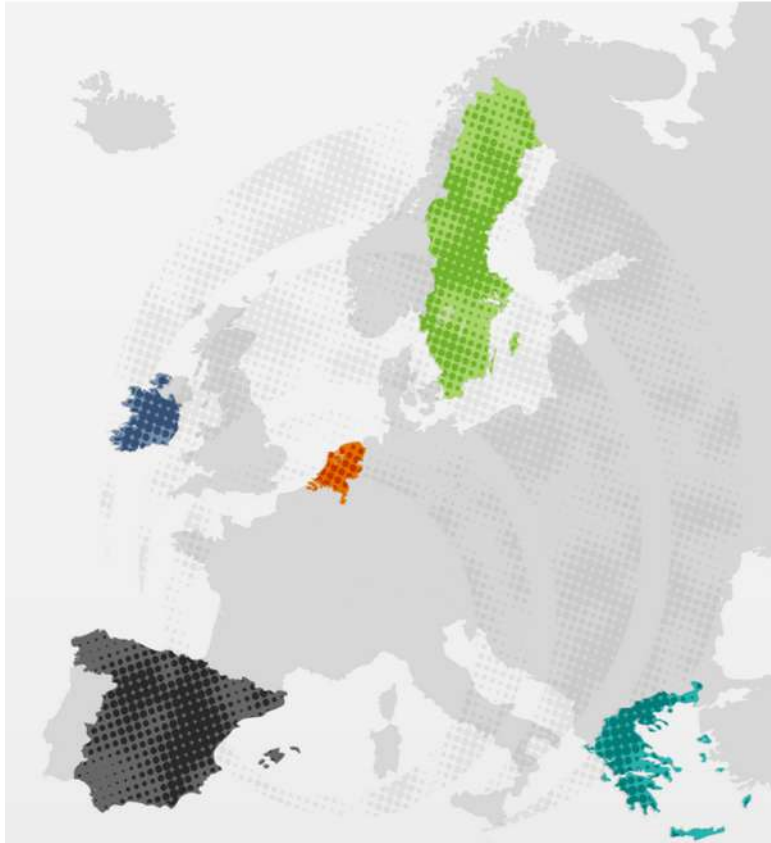
The April 2016 proclamation of the United Nations Decade of Action on Nutrition (2016–2025) provides a unique opportunity for stakeholders to strengthen joint efforts towards eradicating hunger and preventing all forms of malnutrition worldwide.

Governments, inter-governmental organizations, civil society, the private sector, academia and other actors are invited to make their commitments to advancing the global nutrition agenda, within the 2030 Global Agenda for Sustainable Development and framed by the Rome Declaration on Nutrition. Implementation of the Decade is co-convened by the Food and Agriculture Organization of the United Nations (FAO) and the World Health Organization (WHO), in collaboration with the World Food Programme (WFP), the International Fund for Agricultural Development (IFAD) and the United Nations Children's Fund (UNICEF).

**Download**

- [Flyer pdf version](#)  
pdf, 206kb
- [SMART commitments](#)
- [Frequently asked questions](#)

# bigoprogram.eu



SC1-PM-18-2016 –

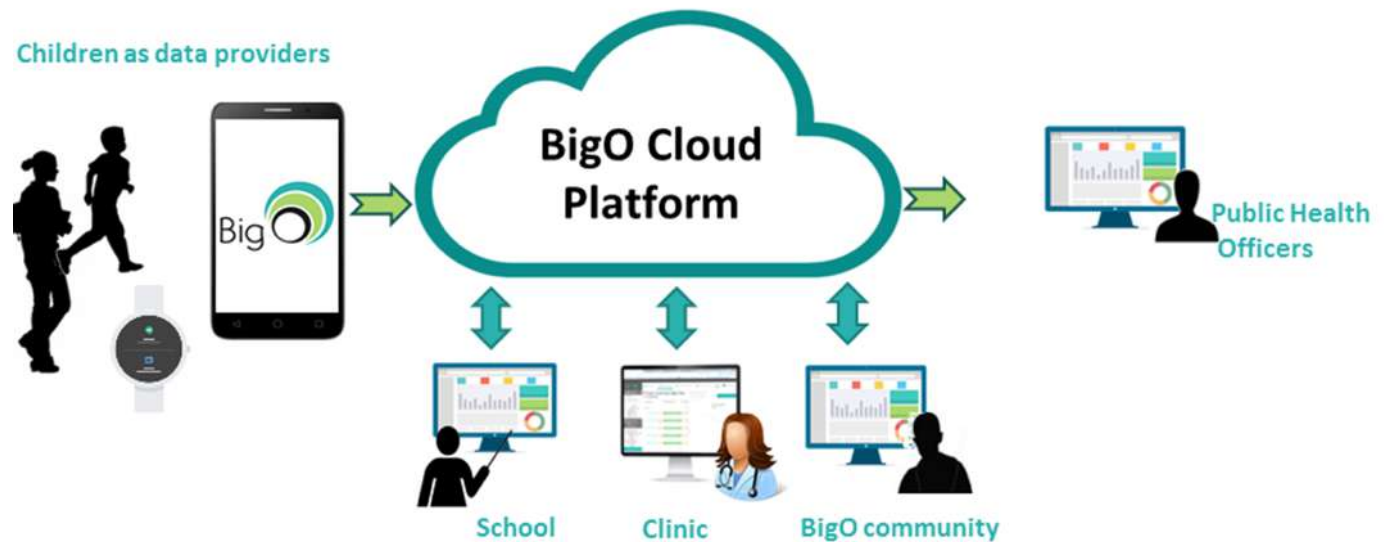
Big Data supporting Public Health policies

Dec 2016 – Nov 2020

# BigO builds a technological platform

Exploits sensor technologies and Big Data analytics to:

- **measure** obesogenic behaviour indicators and environment
- offer **evidence** and **tools** for targeted actions against obesity to:
  - public health authorities
  - health professionals
  - schools



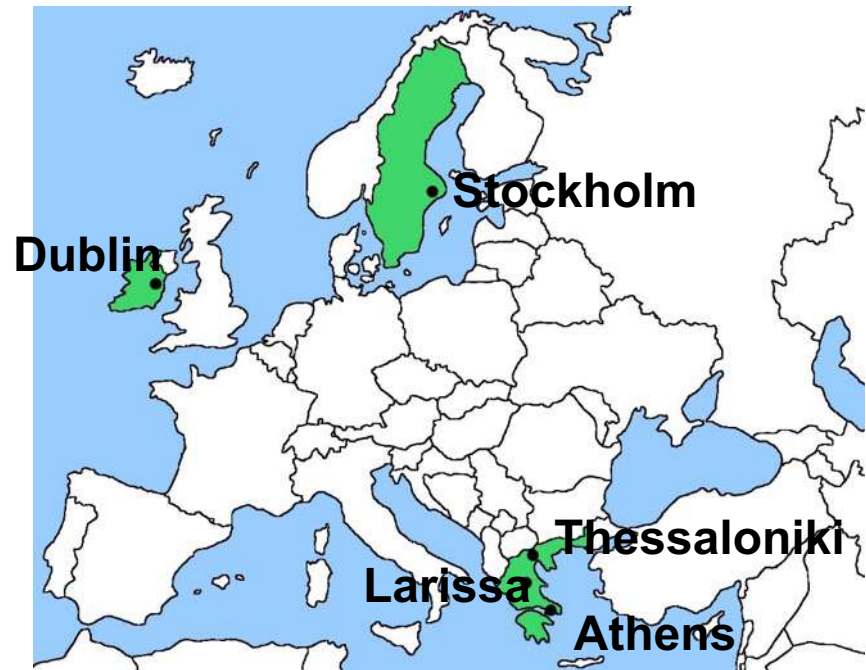
# Collects data from children & adolescents in 5 cities

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AGED 9-18

*Data collection is built around*

- the “**citizen-scientist**” model, which relies on individuals sharing their behaviour data
- monitoring of children with obesity attending specialty clinics

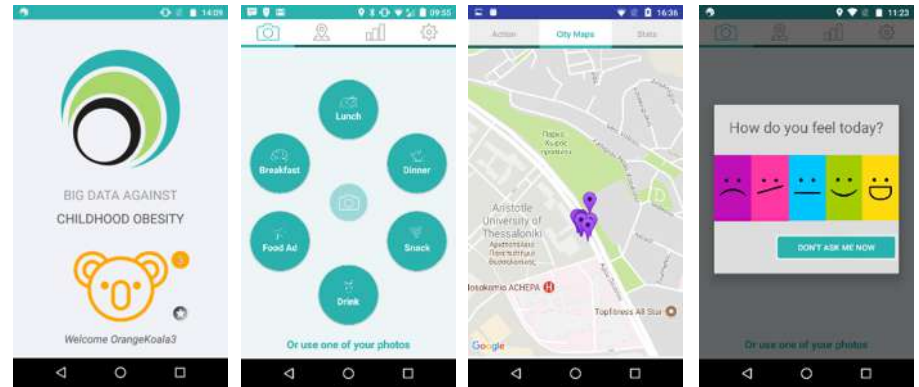




# Data collection

✓ *myBigO app* records

- Accelerometer
- GPS
- Pictures of meals/food ads taken by the user
- Answers to questions

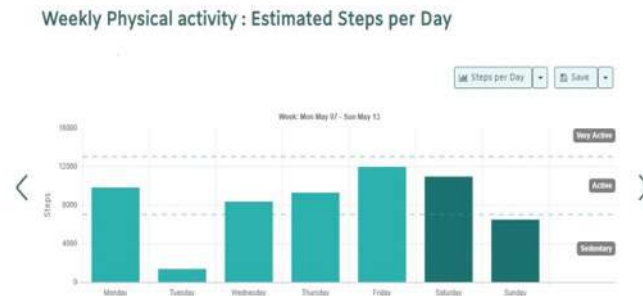


✓ Connects to *WearOS smartwatches*




# Behaviour indicators (physical activity)

- ✓ [Distribution of] Activity type
- ✓ [Distribution of] Activity level
- ✓ [Average nr of] steps per minute *can also be average daily steps but will be an underestimation*
- ✓ [Average nr of] Activity counts per minute *as above*
- ✓ [Distribution of] Mode of transportation used
- ✓ [Average weekly occurrences of] walking/cycling to/from school
- ✓ [Average number of] Mins of active commute to school
- ✓ [Average nr of] mins of Sedentary behaviours after school
- ✓ Distribution of physical activity at school
- ✓ Distribution of Physical activity after school
- ✓ [Average weekly] visits to gym/sports facilities/...



# Indicators of environment\*

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From Foursquare:  FOURSQUARE

- Number of supermarkets and grocery stores
- Number of restaurants and food outlets
- Number of fast-food or take-away restaurants
- Number of Café/bars
- Number of wine/liquor stores
- Number of indoor recreational facilities
- Number of outdoor recreational facilities (athletics and sports)
- Open spaces or public parks
- Density of food outlets
- Density of recreational facilities
- Distribution of recreational facility type

\*Per geohash; in the current implementation the area of a geohash is 153 square meters



DT-SFS-14-2018: Personalized Nutrition (Innovation Action)

**PROTEIN: PeRsOnalized nutriTion for hEalthy livINg**



**Fig. 1-2: The PROTEIN system**

[www.efadconference.com](http://www.efadconference.com)

12th

**EFAD**  
CONFERENCE  
BERLIN | GERMANY

**BREAKING  
PROFESSIONAL  
BOUNDARIES**

1 & 2  
November

2019



Preliminary Programme online!

# Contact

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Thank you!